

# Notice of Allowability

Application No.

10/020,451

Examiner

Robert L. Nasser

Applicant(s)

TAYLOR, CHARLES S.

Art Unit

3736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to phone conversation of 7/13/2004.
2. ☒ The allowed claim(s) is/are 15,26,29 and 33-47.
3. ☒ The drawings filed on 14 December 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |                                                                                                                     |                                                                                        |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                    | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                                     | 9. <input type="checkbox"/> Other _____.                                               |

**ROBERT L. NASSER**  
**PRIMARY EXAMINER**

Robert L. Nasser  
Primary Examiner  
Art Unit: 3736

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Allen Cannon on 7/13/2004.

In the specification:

On page 14, line 15, after the sentence ending in port 2., the following has been added: -- In addition, the passage 26 has a smaller cross sectional area than the vacuum line 3. --

This was added to provide support for the claimed subject matter as in clearly supported by figure 6 on the drawings.

In the claims:

In claim 15, line 3, the phrase – bottom surface and a – has been added between the words a and plurality.

In claim 15, line 4, the words – flush with said bottom surface – have been added after the word ports.

In claim 26, line 4, the words – and flush therewith – have been added after the word surface.

In claim 26, line 8, the word – each—has been added before the word said.

In claim 26, line 8, the word “conduit” has been changed to – port, respectively --.

In claim 29, line 14, after the word aperture, the following has been added : --  
wherein said first and second suction ports are flush with the bottom surface of said  
contact member --.

In claim 45, line 3, after the word surface, the phrase --and being flush therewith -  
-has been added.

In claim 45, line 7, the word "conduit" has been changed to – port connected  
thereto --.

In claim 47, line 2, the phrase "port to which it respectively connects" has been  
changed to – conduit --.

Claims 15 and 29 were amended to define over Dewez 4787662 and Haffer et al  
4931341 and Powell et al 4428815. All of these references show devices where the  
suction ports were larger than the suction apertures. None of the three references have  
the ports flush with the bottom surface of the device. In addition, in Dewez, the ports  
extend beyond the bottom surface, to ensure a strong connection to an irregularly  
shaped item (see column 3, lines 29-53). In Haffer, the bottom surface 12 extends  
outwardly so that the ports are recessed, to be able to lift delicate items without  
damage. In Powell et al the ports here also extend out from the body 12 to minimize the  
strain placed on a silicon wafer (see column 2). As such, the references could not be  
modified to have the ports flush with the outer surface, as it would destroy the operating  
principle of the invention.

Claims 26 and 45 were also amended to define over Dewez and Haffer et al. In  
addition, claims 26 and 45 were was defined to recite that the suction aperture was

smaller than the suction port, and not the suction conduit, as the examiner found Tsuji 5564682, which shows a wafer handling device with a plurality of suction ports, where the conduit has a greater cross sectional area than the suction apertures. The examiner notes that Tsuji has one port that has a larger area than the aperture, but not a plurality of ports, and it does not provide motivation for changing the diameter of the other ports.

Claim 47 was amended to eliminate a redundancy with amended claim 45.

The following is an examiner's statement of reasons for allowance: Mr. Cannon and the examiner had a discussion regarding the 103 design choice rejection on 7/13/2004. Following the reasoning of In re Chu, 36 USPQ 1089 (Fed Cir 1995), which held that a design choice rejection could be overcome with evidence of the advantages of the particular features submitted via attorney argument, applicant proffered the following advantages of having the suction aperture be of smaller cross sectional area than the suction port:

The suction apertures as claimed have a smaller cross-sectional area than the suction ports in order to help maintain the grasp of suction ports against the surface of a tissue during use. For example, when the device is affixed to a beating heart, the beating heart is moving and is changing shape and is therefore not planar. The motion of this non-planar heart surface increases the probability of a suction port breaking contact with the tissue. With such an occurrence, the aperture provided between the port having broken contact and a suction conduit

that supplies suction to a plurality of suction ports, acts to restrict the inflow of air through the suction port that is not currently engaged with the surface of the heart, thereby preventing a rapid loss of suction in the remaining ports. This helps to maintain the engagement of these other suction ports with the heart surface. Without such restriction, vacuum pressure is rapidly lost and all suction ports lose their grasp of the tissue. The semiconductor wafer handling device of Nishiguchi et al. is designed to engage an extremely flat and smooth planar surface, and there would have been no suggestion to modify the device of Nishiguchi for the eventualities discussed above, since semiconductor wafers maintain an even, smooth planar surface that can be readily grasped by suction. Nor does Nishiguchi provide any suggestion or motivation to provide suction apertures having cross-sectional area less than adjacent suction ports and/or suction conduits.

The examiner agreed with applicant's assertions and agrees that these arguments overcome the rejection of record. Accordingly, the design choice rejection in the final rejection has been overcome.

Claims 15, 26, 33, 34, 37, 38, and 42-47 define over the art of record in that none of the art shows the member adapted to contact a beating heart, with a plurality of suction ports flush with a bottom surface of the member, and a suction apertures having a smaller cross sectional area than the suction ports, as claimed.

Claims 29, 35, 39, and 41 define over the art of record in that none of the art shows the member adapted to contact a beating heart, with a two suction ports flush with a contact surface of the member, and a suction apertures having a smaller cross sectional area than the suction ports, as claimed.

Claims 36 and 40 define over the art of record in that none of the art has the suction member with a plurality of suction ports opening through a surface that is contoured to curved surface of the heart. There is no reason to modify Nishiguchi, Tsuji, Dewez, or Haffer et al to be shaped like the heart, as they are for picking up essentially flat devices. In addition, Vierra, 5,749,892, has a contoured bottom surface and suction ports 73 in the contact members. However, the ports do not open into the contoured surface, as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert L. Nasser whose telephone number is (703) 308-3251. The examiner can normally be reached on Mon-Fri, variable hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on (703) 308-3130. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert L. Nasser  
Primary Examiner  
Art Unit 3736

RLN  
July 15, 2004

  
ROBERT L. NASSER  
PRIMARY EXAMINER